



## TECHNOLOGY

# Inhibition Of Metastatic Tumors

## OVERVIEW

Cancer is the second-leading cause of death in the United States. Death of cancer patients is most often caused by metastatic spread of tumor cells from the primary tumor site through the bloodstream where the cells lie dormant for long periods. These dormant cells will invade secondary sites such as the lung, liver or kidney where they develop secondary tumors. Detached epithelial cells from cancerous tumors generate microtubule protrusions called microtentacles, that increase their ability to reattach to each other and other surfaces facilitating metastasis. These microtentacles facilitate invasion through the blood vessel and into the secondary tissue. Inventors at the University of Maryland, Baltimore have elucidated the composition and mechanisms of action of these microtentacles and are currently investigating known and novel compounds that block their formation. The present invention is directed to a system, methods, and compositions that relate to cancer therapy. Specifically, the present invention is directed to preventing metastasis in cells by targeting particular microtentacle structures.

[http://www.youtube.com/watch?feature=player\\_embedded&v=Z1y8xVuaZhg](http://www.youtube.com/watch?feature=player_embedded&v=Z1y8xVuaZhg)

## APPLICATIONS

-Cancer therapies (e.g., for breast, prostate, colon, lung, liver, brain, ovarian, cervical cancers). -This invention consists of a method for treating, novel targets and lead candidate compounds for reducing cancer metastasis. -Novel therapeutics would be given pre and post solid tumor chemotherapy, surgery or radiation therapy to prevent the formation of metastatic tumors.

## ADVANTAGES

Offers novel approach to modulating microtentacle function as it relates to cell metastasis. Novel therapeutic treatment for cancer. Potential for improved drug-target specificity. Broad application as a cancer therapeutic.

## STAGE OF DEVELOPMENT

Lead candidate compounds have been identified and are being characterized. Inhibition of protein targets have proven successful in preventing metastasis in a series of in vitro and in vivo studies.

## R&D REQUIRED

Further in vivo studies are required to validate the concept. Lead compounds must be further validated and optimized. Novel biologic or small molecule compounds could be developed against protein targets.

- MEW

## LICENSING POTENTIAL

UMB seeks development partners for commercialization and/or sponsored research.

## CONTACT INFO

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## Additional Information

### INSTITUTION

University of Maryland, Baltimore

### PATENT STATUS

U.S. Patent 8,193,238, issued June 5, 2012, titled "Inhibition of microtubule protrusion in cancer cells"

### CATEGORIES

- Devices
- Imaging devices
- Software + Algorithm
- Healthcare
- Education/Training/Multimedia

### INVESTIGATOR(S)

Stuart Martin  
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### ATTACHMENTS

-  [Download SM-2006-059 Technology Summary.docx](#)

### EXTERNAL RESOURCES

- [Cancer Metastasis Prevention](#)
- [Metastatic breast tumors express increased tau, which promotes microtentacle formation and the reattachment...](#)
- [Vimentin filaments support extension of tubulin-based microtentacles in detached breast tumor cells.](#)
- [Detyrosinated microtubule protrusions in suspended mammary epithelial cells promote reattachment.](#)

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